

DEC. 28 2007

Appl. No. 10,679,075
Applicant Steven Durham/Inventor
Filed October 3, 2003
TC/A.U. 3637
Examiner Phi Dieu Tran A.
Docket No.
Customer No.

Confirmation No. 3549

Commissioner for patents
P.O box 1450
Alexandria VA 22313-1450

AMENDMENTS**Dear Sir:**

These items listed are in response to the latest Office Action for
Application: **10,679,075**

Remarks/Arguments and Considerations for allowance: are on pages 1-13

Amendments to the Claims: are reflected in the listing of claims section in (*separate*)
pages 1-13

Declaration: 37 CFR 1.132 from Engineer is attached for reasoning over **102** and **103**
rejections regarding the unobstructive structural support for the photovoltaic carport.

Declaration: for Exhibit D: shows reduction to practice regarding photovoltaic canopy
and artificial light layer regarding composition of matter and it's functionality thereof.

Declaration: Dr. Charles Forbes Declaration is contained in the **File Wrapper** of this
application and lists all the reasoning as to why "none" of the former cited patents alone
or in combination teach the claimed inventions composition of matter and unique
functionality .

Amendments to the drawing: is enclosed for clarification purposes which were
previously drawn but not shown that well.

(1.)

ARGUMENT/REMARKS AND CONSIDERATIONS**RESPONSE TO OFFICE ACTION REGARDING
AMENDED CLAIMS overcoming 102 and 103 rejections for application 10,679,075**

RE: Enclosed are new Argument/Remarks & Declaration(s) for Reconsideration of Amended Claims 21, 25, 26, 27, 28, 29, 31, 32, 33, 36, 37, 38, 39, 40 and 41 currently being submitted in this response. As per our informal PHONE CONVERSATION WITH the PATENT EXAMINER, (PHI DEIU TRAN A), I have Amending all the Claims listed herein so as to equal what we covered in our informal phone interview with then attorney Mark Young, representing my case previously.

Please consider these Arguments and Remarks for reconsideration of all Currently Amended Claims:

* Notification to the examiner that currently entered Declaration (s) for this application (#10,679,075) from Lucas & Scott Engineering Inc. and the Declaration from Dr. Charles E. Forbes (Lonach Consulting Inc) are both being submitted with this application.

In reference to the following applications and 102 and 103 rejections, I have submitted a brief argument why I believe that these patents do not clarify or describe an "unobstructive" Energy Generating Shelter System and Method with the enclosed patents alone or in combination.

- **Kowalski (5, 570,000)** see Fig. 1 (alone or in combination, this invention is not relevant due to the current claims (1 and 2) now being submitted that does not contain a light emissive layer, Also, theirs no unobstructive structure mentioned or shown with this device and no light emissive layers being submitted with the current claims. So, this device does not apply to the newly Amended claims and does not support unobstructed aspects in it's structural design or current form and is not comparable respectfully).

- **Saunders (422,668)** (See all Figures) (this application does not teach a lateral placed support or unobstructive aspect, placing it's vertical column's away from a parking space with it's foundation or support unobstructively located or placed away from a parking space and does not teach a canopy made of photovoltaic panels that is unobstructively combined with the device)

- **Dinwoodie (D408,554)** see Fig 6. (this application does not teach an unobstructive element, and it's support columns are "obstructively" placed in the middle of the device which would in essence hinder and obstruct a vehicle's ingress and egress if placed in a parking space and cannot correctly protect the vehicle from the elements unobstructively; and further, it is not clear or taught what this design shades or what it's dimensions are covering or where it's placed unobstructively)

(II)

- Lane (192,723) see Figure 1. (this application does not teach an unobstructive element or mention a laterally placed support, this design shows "obstructive" supports in the middle of the canopy and towards the end of the canopy which is clearly obstructive or not taught as to being unobstructive and is not clearly placed away from the parking space and is not clear as to being placed indirectly away from the parking space providing unobstructive access for a vehicle)

(III.)

ARGUMENT/REMARKS AND CONSIDERATIONS

Appendix of patent claim reasoning for Application: 10,679,075

Claims 21, 33 and 36 in this application have been Currently Amended, as per our (informal) phone conversation with then attorney (**Mark Young**), which we covered and distinguished mainly **Claims 1-26**. In that conversation, regarding application **11,438,195** the same reasoning is now being applied and used in this application **10,679,075** since both applications previously covered basically the same claim approach and language, using the light emitting layer and the photovoltaic canopied aspect.

As per our conversation, the Independent Claims covered and discussed were mainly **Claims 8** (multiple stacked versions layers) and **Claim 19** (on the same substrate layers) which are now Currently Amended in this application with the light emitting diode device clarification and use with a top-mounted photovoltaic canopy and replaced with the equivalent of being placed on the same substrate, as dictated in the previously submitted claim **Claim 19** of application **11, 438,195** and "now" utilized in this applications **Independent Claims 21, 33 and 36** with Dependent claims covering alternative and clarified embodiments of this claimed invention in, **Dependent Claims 25, 26, 27, 28, 29, 31, 32, 37, 38, 39, 40 and 41**.

Claim 36 has also been Currently Amended with a laterally placed aspect of the carports structure indirectly mounted away from the parking space, distinguishing the "substantial" unobstructive structural aspect, location and placement of the support column to the parking space and sheltered area, more specifically while also indentifying the composition of the claimed photovoltaic carport roof embodiments of the Light Emitting LED and/or OLED with the photovoltaic canopy on the same substrate, as listed in Independent and Dependent claims listed above.

(IV.)

Amendment to the Drawings:

The attached sheet and drawings includes changes to Figure 10. This sheet which includes Figure 10, replaces the original sheet. In Figure 10, now indicates where the vertical support mounting foundation and placement lies 110 c (indirect mounting to foundation away from parking space) and 110d, (parking area demarcation zone) and 110e (parking stripe indicating laterally spaced area) .

Attachment" Replacement sheet

Annotated sheet showing Changes

(V.)

In response to the Office Action, Applicant submits the following Amendment
Reasoning, Remarks and Arguments. Application 10,679,075

pgs 1-13

REMARKS, REASONING AND ARGUMENTS

In response to the Office Action, Amended Independent Claims 21, 33 and 36 are being submitted for consideration. The remaining Dependent claims show the alternative embodiments that the Independent Claims describe and claim with this invention's unique configuration and functionality when combined, which depend on one another to adequately show the unique configuration and uses of the claimed invention.

In general, the claims are directed to a photovoltaic canopy of panels, and laminar layer structures on the same substrate of the photovoltaic canopy, comprising photovoltaic elements driven by both natural sunlight and artificial light emitted from the artificial light layer and/or panels on the same substrate. In one claimed embodiment, the artificial light layer comprises an LED and/or an OLED element. In another claimed embodiment, one or more of the layers of the photovoltaic canopy may be transparent. In another claimed embodiment, the artificial light layer is disposed in and attached under the upper photovoltaic layer canopy, which is configured to produce electrical energy from sunlight and artificial light emitted by the artificial light layer attached thereunder. In another claimed embodiment, the artificial light layer is contained "in" the photovoltaic canopy and in essence, on the same substrate as the photovoltaic canopy. In another claimed embodiment, the photovoltaic layer powers the LEDs or OLEDs, which generates electrical current when the photovoltaic layer (canopy) is exposed to artificial light stemming from the artificial light layer contained in the photovoltaic canopy and/or

attached thereunder and still on the same substrate. In yet another claimed embodiment, the artificial light layer displays indicia, which may be human readable information, acting as an information display. In still another claimed embodiment, the unobstructive supporting structure comprises a photovoltaic canopy assembly supported over an outdoor parking area (space) capable of movement (tilting), conserving energy, emitting light and act as an information display simultaneously.

Advantageously, in each claimed embodiment, light emitting panel or layer is capable of emitting artificial light, including illuminated indicia, at night and still conserving energy when each layer is on the same substrate and working together regenerating and conserving energy. Additionally, because the photovoltaic elements produce electric energy from sunlight as well as artificial light emitted from the artificial emitting elements, electrical energy is conserved when both devices are synergistically co-extensive and on the same substrate when powered up. As the artificial light emitting element may include LED's or OLED elements, absorbed light-energy is released and may be reabsorbed by the photovoltaic canopy panel layer, when combining artificial light with the photovoltaic canopy. Such emitted artificial light may be received by the photovoltaic canopy to generate additional electrical power during such periods of darkness also.

In this Office Action, Claims 21, 23, 24, 30, 34 and 35 are Currently Amended and clarified which was previously rejected under 35 U.S.C. §103(a) as being unpatentable over Lane (DI92723) in view of Kowalski (5570000), Ho (6895145) and Hiroshi (3278811). Additionally, Claims 21, 25, 26, 27, 28, 29, 31, 32, 33, 36, 37, 38, 39, 40, and 41 have ben amended and were also rejected under 35 U.S.C. 103(a) as being

unpatentable over Schoniger et al (4903172) in view of Ho (6895145) and Kroger et al (4400244) with the former cited patents combined and have been revised and clarified.

Discussed below is the reasoning and clarification over any and all of the prior rejections cited by the patent examiner whereby Dr. Charles E. Forbes, has reviewed all the prior art and has formed his opinion, stating that none of the prior art alone or in combination constitutes the claimed invention in composition and/or its functionality.

Lane (DI92723) shows an ornamental design for a drive-in canopy which does not afford an unobstructive structure, due to the center positioned column support being obstructively placed in the middle of the carports drive-in area which this canopy actually teaches away regarding unobstructivity and is not taught as being unobstructive but is actually very obstructive in its design. Photovoltaic assemblies are neither taught nor suggested by Lane in this design patent.

Kowalski (5570000) teaches a rather conventional solar powered light assembly for a sign and is attached to a wall and in comparison the claimed invention is not connected to a wall. Photocells are used with the Kowalski wall mounted device and this does not convert artificial light to electrical energy which is then stored in a battery, while this device is operating or in use. Otherwise Kowalski's photocell and lamp assembly, is not a regenerative device that conserves energy while in operation both during the day or nighttime operation. Kowalski's rather crude photocell type light device does not teach or suggest with this device that the battery can power up the bulb/light lamp which illuminates the sign to regenerate or conserve energy at all from artificial light while in

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operation. This device does not regenerate electrical energy from it's own artifical light at all.

Ho (6895145) teaches a spherical lens used to focus and direct light into an optical fiber for transmitting the focused light to an energy converter, a lighting or heating system, or a lighting or heating apparatus. The lighting may include an LED or Organic Emitting Diode ("OLED") configured to provide nighttime and/or low level illumination. However, none of the artificial light emitted from the LED or OLED is used to generate or conserve electricity or teaches or suggests this aspect of it's non-photovoltaic design.

Hiroshi (3278811) teaches a photo-electric transducer (i.e., a double sided photovoltaic cell) which produces an electric current in response to radiant energy Beta-radiation eneregy directed to either one or both sides of the device and stems from "sunlight" only when used outdoors which this device then absorbs Beta radioactive particles, not photons as this device is directed to dangerous Beta X-ray type particles for its energy source and not photons of artifical light stemming from LED's or OLED's. The sunlight beta paticles for this devices energy conversion is only directed to this device when used outdoors by sunlight, not artifical light which this device does not teach or suggest, as the described structure is not internally illuminated by an LED or OLED device layer or panel at all but rather powered by radioactive Beta-decay subatomic particles from sunlight.

Schoniger et al (4903172) teaches an illuminated display that makes use of the

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fact that light can emerge from a fluorescing photoconductive plate essentially only at contact points or interface edges. The plate provides a means for transmitting light from a light source to displayed symbols only and does not regenerate or conserve energy in this aspect. Neither electricity nor light is generated by the plate at all or either taught or suggested for conserving energy with the battery. In turn, all the lateral boundary edges of the photoconductive plate is provided with a reflecting layer, where light is concentrated and issues only at the point where display symbols (or their negatives) are applied at the rear surface of the photoconductive plate yet still does not power the device by its own artificial light source. The display may be powered by conventional solar cells and a battery, but no energy is conserved or regenerated at all when the photoconductive plate and the solar cell are in proximity to each.

Kroger et al (4400244) teaches a photovoltaic cell created by cathodically depositing semiconductor forming material at a cathode of an electrolytic cell to produce a semiconductor compound which is photoreactive but does not conserve energy from an artificial light source. The cell may be transparent and may be completely enveloped within and contained by a transparent container but does not teach or suggest a light emitting LED or OLED light source at all in combination with this device to regenerate or conserve energy. Furthermore this device does not operate to conserve energy, create or regenerate energy from artificial light in combination with this device in layer form or with this photovoltaic panel at all and does not provide an unobstructive supporting structure over a parking space.

Kowalski (5570000) and Schoniger et al (4903172) in combination affirmatively

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teach away from the claimed invention alone and/or in combination. Kowalski (5570000) teaches away from Applicant's invention because, it does not conserve energy from its own light source. Kowalski's device switches from the solar panel at nighttime to the battery alone and powers a lamp from a battery during nighttime and likewise does not teach or suggest that this device is mounted above a parking space or in layer form and able to conserve or regenerate energy simultaneously from its own light bulb device attached as the claimed invention does. [Kowalski col. 3, lines 4-20]. Schoniger et al (4903172) teaches away from Applicant's invention because Schoniger switches off the solar panel at nighttime and powers the LEDs from a battery alone during nighttime and does not conserve energy or teach energy conservation from the devices use at all when in operation from its own lighting source regenerating or conserving energy as the claimed invention teaches. [Schoniger, Col. 4, lines 53-68]. In sharp contrast, photovoltaic elements of Applicant's invention remain operably coupled on the same substrate and produces electric energy from artificial light emitted from the LED and OLED conserving energy, during daytime and nighttime usage when the device is in operation which is very synergistic and quite novel.

A combination of the Prior Art references would not replicate, teach or suggest Applicant's claimed inventions, due to claim features not found, mentioned or alluded to in any reference, and due to fundamental differences between the references and the claimed invention. The cited patents, taken individually and in combination do not, teach a photovoltaic canopy, with at least one top-mounted photovoltaic canopy assembly panel/layer, wherein the photovoltaic element of the carport roof panel, supply's electrical

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conserve energy to a battery while powering up the light emitting element when combined with an artificial light source, including OLED and LED lighting sources, while showcasing illuminated indicia from the LED and OLED panel/layer, while simultaneously acting an information display layer or panel with the photovoltaic canopy panel, conserving energy while in operation from the artificial light emitted from the LED or OLED artificial light source, and further reabsorbed by the photovoltaic top-mounted and stacked assembly of the photovoltaic canopy .

In so doing, the cited patents neither teach nor suggest a structure comprising a multi-layer assembly with an artificial light layer and at least one photovoltaic layer, as recited in Currently Amended Independent claims: 21, 33, and 36; nor do the cited patents teach or suggest a configuration that converts both sunlight and artificial light from an artificial light layer into electrical current, as also recited in Currently Amended Dependent claims 25, 28, 29, 31, 32, and claim 40, likewise, which depend on all the Independent Claims listed herein.

It is the unique structural arrangement of an artificial light panel and layer attached or contained within the photovoltaic canopy that separates and distinguishes this invention's unique composition of matter and functionality as well as the unique energy conservation aspect of re-using light-energy from the artificial light emitted by this device and the sunlight when in operation to produce electrical energy from sunlight as well as from the LED and OLED's panel and layers, that patentably distinguishes the claimed invention from the cited art.

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Amended patent claims and disclosure.

In one aspect of the claimed invention an artificial light layer may be used with this invention such as an OLED and/or an LED artificial light source panel and/or layer which may comprise a flexible thin film-based organic substrate layer and/or a rigid layer/panel which effectively is placed on the same substrate as the photovoltaic canopy panel described as contained "in" or "attached underneath" the photovoltaic canopy panel for use as an artificial light source and an information display simultaneously and can conserve energy when in use with this arrangement. OLEDs are readily deposited on flexible substrates, making this layer or panel type, well-suited for use with this invention in combination with a photovoltaic canopy substrate where it is "mounted to" or contained "in." OLEDs are typically deposited or fabricated on a glass or plastic substrates to form a multi-layer structure having a thickness typically in the range of about one hundred to about several hundred nanometers and is ideal for use with photovoltaics as disclosed in the claimed invention. The photovoltaic material and OLED can be located on the same substrate and can be vapor deposited or formed in a roll-to-roll system by any suitable method known in the art.

All of most important claimed aspects of this invention are listed in the Currently Amended pending claims and is supported by the specification in the most important paragraphs listed herein. Applicant's published application describes a light emitting device, which can be in the form of a layer and/or panel and may be an organic light emitting diode (OLED), and/or an LED layer canopy panel (para. 0021, 0023 and 0055)

9)

The cited patents do not teach or suggest an artificial light layer contained in the photovoltaic canopy assembly or placed under the photovoltaic top mounted layer as recited in Currently Amended Independent Claims 21, 33, or claim 36 which also teaches using a transparent multi-layer assembly including an artificial light layer contained "in" or "attached underneath" the potentially transparent photovoltaic canopy, as recited in Dependent Claims 26 and 27.

Likewise, the cited patents also do not teach or suggest a photovoltaic canopy assembly with an LED, OLED, artificial light layer panel that conserves energy while the device is in use as recited in Independent Claims 33, and 36 specifically.

The cited patents also neither teach nor suggest a photovoltaic canopy panel with a light emitting LED or OLED layer or panel attached or contained in the photovoltaic canopy panel, that simultaneously acts as artificial light source and/or an information display, that can move and tilt, produce energy, conserve energy and act as an information display, above an outdoor parking space and protect a vehicle unobstructively from the environment all at the same time, as recited in Independent claims 21, 33, and 36 and Dependent patent claims, 25, 28, 29, 31, 32, 40 and 41, when combined which is configured for use as a photovoltaic parking area canopy covering parked vehicles. The cited patents also neither teach nor suggest a tiltable, adjustable and moveable carport roof panel at all, as this claimed invention describes with the unique combined composition, uses and/or functionality's as recited throughout this inventions Currently

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and can be co-located on the same substrate (para. 0064). The body of this invention evolves around and centers it's Composition of Matter and it's functionality that stems from the unique configuration of these elements and the above paragraph's illustrate this, including (para. 0065) which describes the LED, Information Display element of this invention while producing energy simultaneously, when in direct proximity to the photovoltaic carport roofs vicinity.

This response is supported by the attached declaration of Charles (Ned) Forbes, Ph.D, under 37 CFR 1.132. Dr. Forbes, a highly qualified and renowned expert in the relevant field, confirms that the cited prior art does not teach or suggest key recited limitations of Applicant's claims; there is no rationale to combine the cited references and modify them to achieve Applicant's claimed invention; and the cited prior art actually teaches away from the claimed invention. In Dr. Forbes' well-informed opinion, at the time of the invention and effective filing date of the Application, it would not have been obvious to provide:

- 1 a photovoltaic canopy panel and layer for producing electricity comprising a first photovoltaic layer, and a second, artificial light layer abutting the photovoltaic canopy panel and configured to emit artificial light and/or act as an information display simultaneously,
- 2 the multilayer panel described above wherein the first-upper photovoltaic layer panel is configured to produce an electrical current when exposed to sunlight, and also capable of producing electrical current when exposed to artificial light from LED and OLED, when co-located with photovoltaic

10)

- canopy on the same substrate contained in or attached underneath the photovoltaic carport canopy;
- 3 the multilayer photovoltaic canopy panel described wherein the photovoltaic layer can be transparent and the photovoltaic layer produces an electrical current when exposed to sunlight and/or light emitted from the artificial light layer contained "in" or "underneath" the photovoltaic canopy panel;
 - 4 the multilayer panel described above with a transparent photovoltaic canopy layer co-extensive with the artificial light layer contained in or attached underneath the first photovoltaic layer and configured to direct artificial light emitted from the artificial light layer downward;
 - 5 the multilayer panel described above, wherein the artificial light layer comprises an LED device, and/or an organic light emitting device;
 - 6 the multilayer panel described above, with any load type, battery, reverse meter and inverter operably coupled to a photovoltaic layer to send any energy produced by the photovoltaic electricity too;
 - 7 the multilayer panel described above, wherein the artificial light layer LED and/or OLED is configured to display human readable indicia and/or illuminated information and act as an information display and conserve energy;
 - 8 the multilayer panel described above, wherein the panel is a photovoltaic canopy assembly supported over an outdoor parking area, and a photovoltaic canopy is attached for movement and is tiltable and

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adjustable;

- 9 a photovoltaic canopy panel capable producing electricity comprising a photovoltaic layer and an artificial light layer contained in and attached thereunder with the photovoltaic canopy and configured to emit artificial light, wherein the photovoltaic layer is configured to produce an electrical current when exposed to sunlight and artificial light emitted from the artificial light layer;

In view of the Currently Amended claims and the substantial differences discussed above in comparison to the cited prior art, it is respectfully submitted that the Currently Amended claims which are now active in this application, clearly and patentably distinguish this invention over the prior art. The prior art, alone or in combination, simply does not disclose, teach or suggest the Applicant's invention as recited in all the Independent Claims forms which rely are relied upon with the Dependent claim forms that shows alternative unique embodiments of the claimed invention and carry these unique embodiments which are Dependent upon one another, distinguishing this invention for any of the prior art.

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CONCLUSION

Applicant believes that a full and complete response has been made to the outstanding Office Action. Applicant further believes that claims are now in condition for allowance. Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. Alternatively, should the Examiner believe, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully

Submitted,




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13)

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully Submitted,

Steven Durham

A handwritten signature in cursive script, appearing to read "Steven Durham", is written over a horizontal line.

904-273-8855